

METHODS AND SYSTEMS FOR  
FULLY DIFFERENTIAL FREQUENCY DOUBLING

ABSTRACT OF THE DISCLOSURE

**[0058]** Methods and systems for fully differential frequency doubling include receiving a differential input signal having a first frequency, generating a non-inverted or positive output signal having twice the frequency of the input signal, and generating an inverted or negative version of the positive output signal. The positive and negative output signals form a fully differential output. The duty ratio of the output signals substantially matches a duty ratio of the input signals. Fully differential frequency doubling can be implemented with NMOS and/or PMOS devices. The invention further provides optional circuitry for increasing an output signal level.